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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/422,210	10/19/1999	DOUGLAS O. REUDINK	47586-P036US	5254

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EXAMINER	
NGUYEN, HUY D	
ART UNIT	PAPER NUMBER
2681	4

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/422,210	REUDINK ET AL.	
	Examiner	Art Unit	
	Huy D Nguyen	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *25-31,57,58 and 62-64* is/are allowed.

6)☒ Claim(s) *1-9,17-24,32-37,50,52-56 and 59-61* is/are rejected.

7)☒ Claim(s) *10-16,38-49 and 51* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 59 recites the limitation "said determination" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 60-61 depend on claim 59. Therefore, they are rejected for lack of antecedent basis for the limitation "said determination".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 32-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Shen et al. (U.S. Patent No. 6,118,767).

Regarding claims 1, 32-34, Shen et al. discloses a base station system adapted to provide simultaneous reuse of channels at base station, system comprising: a multiple narrow beam antenna system adapted to provide isolation of signals radiated therein, wherein sectors of base

station are associated with different ones of antenna beams [Col. 4, lines 33-44]; base station radio circuitry adapted for providing a plurality of discrete simultaneous communications using a first communication channel in different ones of sectors (e.g., the idea of using multi-beam antenna is to increase transmit power without increasing interference between sectors and to increase system capacity through channel reuse in different sectors); and circuitry providing controllable coupling of base station radio circuitry to multiple narrow beam antenna system (it is inherent that circuitry to control coupling of base station radio circuitry to multiple narrow beam antenna system is included).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-3, 17-24, 37, 50, 52-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (U.S. Patent No. 6,118,767).

Regarding claims 2-3, Shen et al. discloses the claimed invention except that a different sector control channel is associated with each sector of base station. It would have been an obvious matter of design choice to use any control channel for each sector of base station since it does not solve any particular problem and it appears that the system would perform equally well with any control channel used.

Regarding claims 17, 19, 52, 55, time division duplex channel including a forward link portion and a reverse link portion is well known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have first channel being time division duplex channel including a forward link portion and a reverse link portion since it is known and commonly used.

Regarding claims 18, 54, frequency division is well known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have first channel being frequency division since it is known and commonly used.

Regarding claims 20, 56, code division is well known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have first channel being code division since it is known and commonly used.

Regarding claims 21-22, it would have been an obvious matter of design choice to have the multiple narrow beam antenna system being a fixed multiple beam or an adaptive array since it does not solve any particular problem and it appears that the invention would perform equally well with the multiple narrow beam antenna system being a fixed multiple beam or an adaptive array.

Regarding claims 23-24, it would have been an obvious matter of design choice to have the multiple narrow beam antenna system provides non-overlapping beams or overlapping beams since it does not solve any particular problem and it appears that the invention would perform equally well with the multiple narrow beam antenna system providing non-overlapping beams or overlapping beams.

Regarding claim 37, Shen et al. discloses the claimed invention except for a switch matrix. However, switch matrix is known in the art and commonly used to selectively direct data transmission signals to the proper transmission path. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to include a switch matrix for flexibility.

Regarding claim 50, Shen et al. discloses the claimed invention except for the wireless communication between the base station and a number of remote stations utilizing a second communication channel simultaneously in different ones of sectors. It would have been an obvious matter of design choice to use any communication channel simultaneously in different sectors since it does not solve any particular problem and it appears that the invention would perform equally well using any communication channel simultaneously in different sectors.

Regarding claims 53, forward link portion and reverse link portion being of different durations is well known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have forward link portion and reverse link portion being of different durations since it is known and commonly used.

7. Claims 4-8, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (U.S. Patent No. 6,118,767) in view of Newman et al. (U.S. Patent No. 5,907,816).

Regarding claim 4, Shen et al. discloses the claimed invention except that the sector control channel is a multiple beam antenna access channel adapted for use in identifying a most preferred antenna beam of multiple narrow beam antenna system for use with each of a plurality of remote stations in communication with base station. Newman et al. teaches that the sector control channel is a multiple beam antenna access channel adapted for use in identifying a most

preferred antenna beam [Col. 3, lines 9-23]. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have the sector control channel being a multiple beam antenna access channel adapted for use in identifying a most preferred antenna beam of multiple narrow beam antenna system for use with each of a plurality of remote stations in communication with base station since it provides signal quality.

Regarding claim 5, sector control channel including a forward link data packet comprising synch bits, overhead information, RSSI information, number of antenna beams, current antenna beam, and directed message is known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have sector control channel including a forward link data packet comprising synch bits, overhead information, RSSI information, number of antenna beams, current antenna beam, and directed message since it is known in the art.

Regarding claim 6, sector control channel including a reverse link data packet comprising a leading and trailing guard time, synch bits, RS identification information, and report message is known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have sector control channel including a reverse link data packet comprising a leading and trailing guard time, synch bits, RS identification information, and report message since it is known in the art.

Regarding claim 7, Newman discloses controllable coupling circuitry being adapted to provide independently controllable coupling of each one of plurality of discrete simultaneous communications using first communication channel to ones of antenna beams. [Col. 3, lines 10-48].

Regarding claims 8, 35, Newman discloses controllable coupling circuitry being adapted to couple each one of plurality of discrete simultaneous communications using first communication channel to any one antenna beam of a sector associated with each one of plurality of discrete simultaneous communications [Col. 3, lines 9-48].

8. Claims 9, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (U.S. Patent No. 6,118,767) in view of Meyer et al. (U.S. Patent No. 6,236,866).

Regarding claims 9, 36, Shen et al. discloses the claimed invention except that the controllable coupling circuitry is operable to redefine sectors of base station by associating different ones of antenna beams. Meyer et al. teaches DSSA design that allows automatic and dynamic control and stabilization of geographical coverage of a cell [Col. 4, lines 3-10]. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have controllable coupling circuitry operable to redefine sectors of base station by associating different ones of antenna beams as disclosed in Meyer et al. since it allows for variation in both the range and azimuth coverage.

Allowable Subject Matter

9. Claims 10-16, 38-49, 51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 10-16, prior arts fail to teach the system of claim 1, wherein at least a sequence or combination of coupling antenna beams of multiple narrow beam antenna system to

base station radio equipment by controllable coupling circuitry is selected to optimize system data throughput.

Regarding claims 38-49, prior arts fail to teach a controller adapted to optimize system data throughput through a determination with respect to utilizing first communication channel simultaneously.

Regarding claim 51, prior arts fail to teach that ones of plurality of remote stations further comprise a multiple narrow beam antenna system adapted to provide wireless communications to base stations to the exclusion of other base stations.

Claim 25 is allowed. The following is an examiner's statement of reasons for allowance: regarding claim 25, prior arts fail to teach determining a resource utilization solution to optimize data throughput in communications between base station and a plurality of remote stations, wherein resource utilization solution dynamically determines particular antenna beams and channels for which simultaneous communications may optimally occur.

Claims 26-31 depend on claim 25. Therefore, they are allowable.

Claim 57 is allowed. The following is an examiner's statement of reasons for allowance: regarding claim 57, prior arts fail to teach a controller coupled to controllable coupling circuitry adapted to optimize system data throughput through a determination with respect to utilizing first communication channel simultaneously.

Claims 58, 62-64 depend on claim 57. Therefore, they are allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sydor (U.S. Patent No. 6,473,616) teaches method and apparatus for data communication.
- Smith et al. (U.S. Patent No. 6,009,124) teaches high data rate communications network employing an adaptive sectored antenna.
- Wong et al. (U.S. Patent No. 6,233,466) teaches downlink beamforming using beam sweeping and subscriber feedback.
- Scherzer (U.S. Patent No. 6,347,234) teaches practical space-time radio method for CDMA communication capacity enhancement.
- Gans et al. (U.S. Patent No. 5,610,617) teaches directive beam selectivity for high speed wireless communication networks.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huy D Nguyen whose telephone number is 703-305-3283. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on 703-305-4778. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-6750.

SINH TRAN
PRIMARY EXAMINER

September 15, 2003